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ECONOMIC ANALYSIS OF CIRCLE TO FORT PECK ROUTE

FOREWORD

The Circle to Fort Peck route has previously been analyzed in a report which was released in December 1945. This report covered the entire route from Circle through Fort Peck to Glasgow, and it was the finding that the route from Circle to Glasgow had greater economic value than the route from Van Norman to Glasgow. On the basis of this report the State Highway Commission recommended, in action of August 29, 1945, that the Van Norman to Glasgow Route be removed from the Primary System, and that it be replaced by designating the Circle to Fort Peck Route as a portion of the Secondary System. This proposal encountered considerable opposition, and the State Highway Commission, under date of May 20, 1946 rescinded their previous action. The opposition appeared to be centered mostly on the objection to transferring the route from the Primary System to the Secondary System.

This present report has been prepared for the purpose of appraising the route in relation to current conditions. It has been found that the anticipated traffic remains practically the same as estimated in the previous report; however, the estimated construction costs and the benefits to traffic have been revised to agree more closely with present circumstances.

The previous report treated with the entire length of the route from Circle to Glasgow, but since the Glasgow to Fort Peck section has already been constructed and remains an essential part of the highway system, this report is confined to the unconstructed portion of the route between Circle and Fort Peck.

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DESCRIPTION OF ROUTE

The route commences at a point on FA Route No. 15 in Circle and extends northwesterly along the approximate alignment of present FAS Route No. 252 and connecting county roads to the town of Weldon. From Weldon the route proceeds along a northwestern diagonal to a point near the Rock Creek Recreational Camp. From this point north to the Fort Peck Dam the route follows the same alignment as previously selected for the Van Norman to Fort Peck Route and follows along the east shore of the Fort Peck Reservoir.

From Circle to Weldon the route follows the Horse Creek drainage at a relatively moderate grade. It may be possible to salvage portions

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of existing roads, however, for the most part complete reconstruction will be necessary to attain primary standards. Beyond Weldon the route traverses undeveloped open range that is quite hilly and rough. The prevailing drainage is crossed most of the way, which will involve considerable bridge construction and culvert installation. In common with the Van Norman-Fort Peck Route, this route will utilize the Fort Peck Dam for a crossing of the Missouri River, thereby avoiding the high cost of a major structure.

ECONOMIC DEVELOPMENT

The city of Circle, located at the southeastern terminus of this route, is the county seat for McCone County. It is situated at the junction of FA Routes 15 and 25 and is served by a branch line of the Northern Pacific R.R. The population at the time of the 1940 Census was 685 persons, and it is believed that there has been a moderate increase in population since that time. It is the principal trading center and shipping point for a large area in this section of the State.

The only other community of interest along this route between Circle and Fort Peck is located at Weldon. It is a rural post office that serves the surrounding ranches, and the population is negligible.

This general region of the State is quite arid and the land is suitable only for dry land farming and grazing. There are several ranches located adjacent to this route between Circle and Weldon, mostly within the drainage area of Horse Creek. Between Weldon and Fort Peck, the land consists mostly of submarginal, open range that is used for grazing where water supplies permit. Some wild hay grows in the bottoms of coulees where sufficient water accumulates to stimulate growth.

The Bureau of Reclamation plans to establish several irrigation tracts along the Missouri River below Fort Peck Dam which will be supplied water by means of pumping plants. These tracts are normally divided into several small units and will support a number of families. Those tracts located south of the river will be served to some extent by this route.

The Army Engineers also plan to develop several recreation sites along the perimeter of the Fort Peck Reservoir. A recreational camp located at Rock Creek and a fishing camp located at Bear Creek will be served directly by the highway.

The construction of a new highway through the region will eliminate the existing isolation and will probably result in the establishment of a few new ranches. There will also undoubtedly be a limited amount of commercial development such as filling stations, taverns, etc., that will be attracted by the possibilities created by the construction of a new highway through heretofore undeveloped country.

CONSTRUCTION COSTS

It is anticipated that the total traffic using the route will be sufficient to require the construction of a standard bituminous surfaced highway. There should be a normal amount of heavy truck traffic which will use this route because of the short-cut that it provides between Circle and Glasgow and because the lack of congestion will permit faster, safe speeds. This heavy traffic will require adequate provision of surface and base thickness.

The estimated construction and maintenance costs are presented in the following table:

ESTIMATED CONSTRUCTION AND MAINTENANCE COSTS

Roadway and bridges	1,800,000
Survey, plans and R/W	95,000
Administration and overhead	94,750
Sub-total	1,989,750
Plus: 10% for contingencies	198,975
TOTAL INITIAL CONSTRUCTION COSTS	2,188,725
Resurfacing at end of 15 years	684,000
TOTAL CONSTRUCTION COST	$2,872,725
Annual amortized cost-30 years @ 2%	$ 128,124

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State's share of annual cost with Federal Aid	$ 53,020
Annual maintenance cost	51,300
Total annual cost to State	$ 104,320

TRAFFIC

Traffic using this route may be divided into three principal categories; local, recreational and through traffic. The only local traffic of interest at the present time is located between Weldon and Circle. This traffic consists of farm-to-market traffic between the ranches and the shipping and trading point at Circle.

Present counts show about 75 vehicles per day near Circle and 25 vehicles per day near Weldon. There are also about 50 vehicles per day on the existing county road near the Fort Peck Dam. Traffic at this point is relatively high because all vehicles in this vicinity south of the river must converge here to cross the river. The traffic diminishes rapidly south of the dam and varies from five to fifteen vehicles per day on the average between Weldon and Fort Peck.

The existing roads through this section of the county are largely unimproved and widely scattered. Practically all of traffic in the central portion can be expected to divert to this route when it is completed.

A major portion of the anticipated traffic using the route will consist of recreational traffic visiting Fort Peck Dam or the recreational camps along the reservoir. It is difficult to estimate the number of vehicles per day that would visit these points, however, several studies have been made of driving characteristics which are useful in arriving at an approximate figure. These studies have shown the number of trips made by the average driver per year, the length of these trips, and the approximate percentage of trips that are of recreational nature. By obtaining a relationship between these factors and the surrounding population and development, it is possible to derive a rough estimate of the recreational trips per day to the reservoir area. These figures were also substantiated by the results obtained from Origin-Destination surveys made in this vicinity. There will probably be more recreational traffic using this route than there would be on the Van Norman-Ft. Peck Route because it provides a more direct line and shortens the travel distance.

It is also anticipated that there will be a considerable volume of through traffic which will find this route advantageous. Reference to the traffic flow map shows that there is a large volume of traffic which enters the State on US Highway No. 10 from North Dakota and points east. Any of this traffic which is bound for Glasgow or points west on US Highway No. 2 will find the distance approximately 15 miles shorter via this route as compared with the Circle-Wolf Point-Glasgow route. In effect, the Circle-Ft. Peck-Glasgow route is a direct extension of the Beach-Glendive-Circle route. The anticipated volume of through traffic was derived from an analysis of results obtained from Origin-Destination surveys taken in this section of the State.

The estimated average daily future traffic volumes in the various categories are shown in the following table:

ESTIMATED FUTURE TRAFFIC

Local traffic - includes existing and diverted	59 vehicles per day

Recreational Traffic - to dam and camps	63 vehicles per day
Through traffic - diverted from other routes	106 vehicles per day
TOTAL ESTIMATED TRAFFIC	228 vehicles per day

REVENUE FROM TRAFFIC

The motorist pays two separate taxes for support of State highways: The Motor Fuel Tax and The Motor Vehicle Use Tax. It is possible to determine quite closely the amount of tax that the average motorist pays to operate his vehicle for one mile, and by multiplying the unit tax per mile by the average number of vehicle miles of traffic on this route, the average annual income from the route can be determined. It has been contended that the income from diverted traffic should not be credited to a new route since this income is diverted from other routes which need it to maintain their own solvency. There is considerable justification for this theory, particularly in this State where existing revenue is inadequate to support the present highway system; however, strict application of the principle would preclude the addition of any new routes regardless of their merit.

In this analysis all revenue from traffic has been included, regardless of source or type. The annual revenue has been computed at $23,012.00 for local and recreational traffic and $20,980.00 for through traffic, making a total of $43,992.00 per year.

BENEFITS TO TRAFFIC

The construction of a new highway from Circle to Fort Peck would provide definite benefits to the motoring public. It would reduce vehicular operating costs by shortening the travel distance and improving alignment, grade and roadway surface. Time savings would be experienced because of the shorter travel distance and the faster, safe speeds that would be possible because of the improved roadway surface and alignment. The local and recreational traffic would enjoy all of these benefits, however, the through traffic would realize only the benefits resulting from the shorter distance since the roadway surface and alignment would be uniform on the new and the old routes.

The value of the operating and time savings is determined by detailed calculations, and in the interest of brevity, only the conclusions are presented in this report. These values are shown in the following table:

VALUE OF OPERATING AND TIME SAVINGS

Type of Saving	Annual Amount
Distance shortening	$ 118,075
Surface improvement	39,002
Alignment improvement	4,215
Rise and fall eliminated	672
Gradient improvement	1,062
Traffic stops eliminated	158
Total Operating Savings	$ 163,184
Time Savings	66,626
TOTAL SAVINGS	$ 229,810

CONCLUSIONS

An economic analysis of this type is prepared for the principal purpose of determining, in advance of construction, the degree of financial and economic solvency that can be expected to result from the construction of the route. Financial solvency is assumed if the annual revenue is sufficient to pay the annual amortized construction and maintenance costs. Economic solvency is realized if the benefits to the motorist equal or exceed the annual amortized construction and maintenance costs. The results obtained from this analysis are summarized below:

COMPARISON OF ECONOMIC FACTORS

Financial Solvency - $\frac{\text{Revenue}}{\text{Costs}}$ $\frac{\$\,43,992}{\$104,320}$ Ratio 0.4217

Economic Solvency - $\frac{\text{Savings}}{\text{Costs}}$ $\frac{\$229,810}{\$104,320}$ Ratio 2.2029

Remarks:

1. For each $1.00 invested by the State Highway Department in the construction and maintenance of this route, $0.42 may be expected in return revenue to meet these costs.

2. Each $1.00 invested in the construction and maintenance of the route would provide benefits to the motorist equal to $2.20.

3. Annual maintenance cost is estimated at $51,300.00. The revenue of $43,992.00 per year would be only 86% of the amount required to meet maintenance costs.

The previous report prepared in 1945 recommended that this route be added to the Secondary System instead of the Primary System. It does not appear that this procedure would be practical under present regulations which require that the counties maintain Secondary Roads. The estimated annual maintenance cost on this route would absorb practically all of the road and bridge funds in McCone County, leaving nothing for other roads.